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ABSTRACT

An examination of the effectiveness of English-Ukrainian partial immersion programs in Alberta, Saskatchewan, and Manitoba looks at research already done in five areas: student achievement in English language skills, Ukrainian language skills, academic subjects other than English or Ukrainian, students' cognitive development, and students' social and psychological adjustment and perceptions. Weaknesses found in the research methodology are discussed, and it is concluded that these weaknesses bring many of the research results into question. Further testing of English-Ukrainian partial immersion programs using more carefully monitored methods and variables is recommended. (MSE)

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STUDENT ACHIEVEMENT IN ENGLISH-UKRAINIAN PARTIAL IMMERSION PROGRAMS

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Abstract

English-Ukrainian partial immersion programs have been in operation in Alberta, Saskatchewan and Manitoba since the mid-1970s. While programs operate in a number of locations in these provinces, not all of the programs have been or are being formally evaluated. More importantly still, the small amount of research that has been done to date on these programs has been inadequately disseminated and therefore has escaped close scrutiny. This article attempts to partially rectify this situation by taking a close and critical look at the research that has been done to date in five key areas: student achievement in English language skills, in Ukrainian language skills, in academic subjects other than English or Ukrainian, students' cognitive development, and students' social and psychological adjustment and perception. In the process of discussing the research, major weaknesses in the testing methodology are highlighted and recommendations are made for future improvements.

Résumé

Depuis le milieu des annees 70, les programmes de l'immersion partiale pour l'instruction des langues anglaise-ukrainienne ont été établis en Alberta, au Saskatchewan et au Manitoba. Quoique ces programmes aient été établis en plusieurs lieux dans ces provinces, tous les programmes ne sont pas évalués et n'ont pas été evalués formallement.

Plus important encore le peu de recherche qui a éte fait jusqu' a present sur ces programmes a été disseminé insuffissament et par consequent a échappé à une enqûete rigoureuse.

Cet article essaie de rectifiér en partie à cette situation par une investigation de recherche qui a été fait jusqu' à présent sur cinq sujets principaux: l'habileté des étudiants en anglais, en ukrainien, et dans les autres sujets académiques, leur développement cognitif, leur conduite sociale et psychologique, et leur faculté de perception sociale et psychologique.

Dans ce processes de l'approfondissement la recherche on trouve que les méthodes d'épreuve sont faibles et que ces faiblesses sont accentuées. Il y a des recommendations faites pour améliorer à l'avenir.

Student Achievement in English-Ukrainian Partial Immersion Programs

Introduction

In recent years a variety of heritage language partial immersion programs have been instituted in the public and separate elementary systems in Alberta, Saskatchewan and Manitoba. From the modest beginnings of the first such program in the mid-1970s, the concept has expanded to the point where in the 1985-86 school year there were just under 4,000 students enrolled in partial immersion programs in Arabic, German, Hebrew, Mandarin, Polish, Ukrainian and Yiddish (See Table 1).

Insert Table 1 About Here

Despite the slow and steady growth of such programs there is a conspicuous absence of information on student achievement in the programs. This article attempts to partially rectify this situation by taking a close and critical look at the research done to date on the Ukrainian bilingual programs, the oldest and largest of the heritage language partial immersion programs. After providing the reader with a brief background on the origins and development of the Ukrainian immerison programs in each of the prairie provinces, the article goes on to examine student achievement in the programs in five key areas: English language skills, Ukrainian language skills, academic achievement in subjects other than English or Ukrainian, students' cognitive development, and students' social and psychological adjustment and perception. In the

process, major weaknesses in the research have been highlighted and an attempt has been made to point out ways in which future testing might be improved.

Alberta

Alberta was the first province to pass legislation to legalize languages other than English or French as media of instruction in the public school system. The enabling legislation was passed in 1971 after the government received pressure from provincial Ukrainian groups. Shortly thereafter a group of concerned Ukrainian Canadians took the steps necessary to start a Ukrainian bilingual kindergarten. Even before the plans for the kindergarten had been finalized, Alberta's Ukrainian Language Committee had made presentations to both Edmonton school boards (Public and Catholic) and to the Alberta Department of Education to establish Ukrainian bilingual elementary classes. As a result of these meetings, a three year pilot project (later extended to five years) was begun in the 1974-75 school year. The experiment called for the Alberta Department of Education to commit $50,000 per year to the program, to hire a Ukrainian curriculum specialist, and to pay for 80 percent of the cost of formal evaluations of the pilot project. The Edmonton Public and Catholic systems, meanwhile, were to provide the teachers and facilities, hire consultants to implement the programs, evaluate the programs on a yearly basis, and submit the evaluations to the Alberta Department of Education. (Tomko n.d.) The success of the pilot project lead to the government's approval and simultaneous extension of the program to grade 6. This was in 1976. In 1980 the program was further extended to grade 9, and in 1983, to grade 12. (Staff. The Ukrainian Bilingual Program in Alberta--10 Years. A Supplement to Ukrainian News 1985b)

Most of the students enrolled in the programs are third or fourth generation Canadians

who are not fluent in Ukrainian when they enter the programs. Major objectives of the programs include: (a) revival of the language, (b) development of effective communication skills in English and Ukrainian, (c) development of an understanding and appreciation of the Ukrainian cultural heritage in Canada (and, in the case of Separate school systems, the Ukrainian Catholic Rite), and (d) development of positive attitudes toward the learning of other languages and the understanding of other cultures.

Students receive instruction in English in the "academic subject areas" (Ewanyshyn 1978:10) (i.e., arithmetic, reading, English language arts, science) for approximately 50 percent of the school day, and instruction in Ukrainian in the "cultural subject areas" (Ewanyshyn 1978, p. 10) (i.e., social studies, physical education, art, music, Ukrainian language arts, and, if applicable, religion) for the remainder of the day. This figure decreases to approximately 30 percent at the junior high level and to approximately 20 percent of the time at the senior high level. (Staff. The Ukrainian Bilingual Program in Alberta--10 Years. A Supplement to Ukrainian News 1985 May15a)

It should be noted that in contrast to French immersion programs, Ukrainian reading and writing are not introduced until the grade two level, after the students have already mastered these skills in their first language (English) at the grade 1 level. (Ewanyshyn 1978)

Because of the apparent success of Alberta's English-Ukrainian partial immersion programs, programs in Hebrew, Yiddish, German, Arabic, Mandarin and Polish have also been added (See Table 1 for enrollments). (Alberta. Alberta Education n.d. a, n.d. b; Canada. Department of the Secretary of State. Multiculturalism Directorate n.d.; Canada. Multiculturalism Canada 1985; Jones 1984)

Manitoba

In 1978 Manitoba passed legislation similar to that in Alberta. By September of the following year an English-Ukrainian program had been implemented on a pilot basis in one grade 1 class in each of three school divisions in the province. Funding was provided by the provincial Department of Education. In addition, Manitoba's Minister of Education approved a number of classes established through local initiative in three additional school divisions in September of 1979 and 1980. These classes were funded by the divisions in which the programs were instituted and were comparable in all respects to the pilot classes. Objectives for the program were similar to those for Alberta's English-Ukrainian program. Subjects taught in English and in Ukrainian also paralleled those of the Alberta program.

The success of the pilot project led to the subsequent implementation of partial immersion programs in two other languages--German and Hebrew (See Table 1 for enrollment figures for each program) (Balan & Spolsky 1985; Canada. Department of the Secretary of State. Multiculturalism Directorate n.d.; Cummins 1983; Manitoba. Department of Education n.d. a, n.d. b, Spolsky 1983, Yurkiwsky 1981)

Saskatchewan

Since 1974 Saskatchewan has had similar enabling legislation. In that year initial changes to the province's School Act made it possible for non-official languages to be used for up to 20 percent of the instructional time from grades K to 12. In 1978, creation of The Education Act and accompanying regulations made it possible for a non-official language to be used as a mode of instruction for up to 100 percent of the time in kindergarten and for up to 50 percent of instructional time in subsequent grades. Despite such changes there has only been limited

interest within the province in partial immersion programs in non-official languages.

Although there were preschool and kindergarten Ukrainian programs in place in the Saskatoon Public School System in the early 1970s, the only lasting effort to date has been with the Saskatoon Separate Schools. In 1976-77 parents and educators in that city began efforts to establish a Ukrainian-English bilingual program. Concerted effort on the part of parents succeeded in attracting a sufficient number of students to begin a kindergarten class in September of 1979. This class was offered through the Separate School Board since that board, unlike the city's Public School Board of the time, was commited to transporting children to and from schools conducting special programs. Each year since the program commenced, one additional grade has been added. Enrollments in the program remain low (See Table 1), a factor which may not bode well for a program whose continuation has always been dependent upon reasonable levels of pupil enrollments[1].

Student Achievement in Ukrainian Partial Immersion Programs

While there are English-Ukrainian partial immersion programs in operation in a number of locations in the three prairie provinces (See Table 2), not all of the programs have been or are being formally evaluated. Those that have been formally evaluated include the programs of the Edmonton Public and Edmonton Catholic systems, and the program in Manitoba.

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[1] (G. Zerebecky, Saskatchewan Department of Education, personal communication, 1985).

Insert Table 2 About Here

It should also be pointed out that the research that has been done to date on these programs is peppered with weaknesses and inconsistencies. Three examples may suffice for the moment, although more will be said on this point as the article progresses.

First, none of the research done to date has gone beyond the grade five level. This means that there is a relatively small database of information from which to draw conclusions. Without a large database that follows the same groups of students over a number of years, the reliability of results and conclusions is affected and research efforts are hampered.

Second, there is incomplete data on the backgrounds of children ~~are~~ who are enrolled in such programs. For example, there is incomplete information on the IQs, ability levels, and socio-economic background of students in the programs. In a similar vein, there is no longitudinal data outlining the parents' abilities to speak Ukrainian, the amount/percentage of time Ukrainian is spoken at home, or the students' prior attendance in a Ukrainian language pre-school or kindergarten program. Such information would have proven useful, as would have comparable data which would have permitted comparisons amongst school boards or jurisdictions.

Third, control variables were often improperly managed. For example, when testing the skills of students, school boards did not always use the same test or series of tests each year. This meant that no long-term comparisons between subtests could be made. Similarly, the groups to which the experimental students were compared often varied from year to year. For

example, in 1974-75, 1977-78, and 1978-79 students in the English-Ukrainian program of the Edmonton Public School Board were compared to control groups matched on the basis of a variety of variables, while in 1975-76 and 1976-77 experimental students were compared to regular (i.e., unmatched) program students.

Weaknesses such as these bring the reliability of the test results into question.

These points aside for the moment, what do the results of the testing done to date purport to tell us about student achievement in English language skills? in Ukrainian language skills? in academic subjects other than English or Ukrainian? students' cognitive development? students' social and psychological adjustment and perception?

English Language Achievement

The English language achievement of students in English-Ukrainian partial immersion programs has been assessed on a formal basis by comparing immersion program students with either regular program students or control group students. In both instances, students have been matched on a wide variety of English language tests, including the vocabulary and comprehension subtests of the Canadian Test of Basic Skills (CTBS), the Stanford Achievement Test (SAT), the Edmonton Public School Board Elementary Reading Test, the Gates-MacGinite vocabulary and comprehension tests, and the Wide Range Achievement Test (WRAT) in reading.

Students' English language achievement has also been assessed on an informal basis by questioning parents and teachers about their satisfaction with student development of English language skills.

Results of the formal testing were obtained by matching experimental students with control or regular program students on a variety of variables, including age, sex, grade level,

Primary Mental Ability (PMA) scores, Metropolitan Readiness Test (MRT) scores, Canadian Cognitive Abilities verbal IQ scores, achievement tests in reading or mathematics, and socio-economic status.

For example, in 1974-75, 1975-76 and 1977-78 the SAT was used by the Edmonton Public School Board (EPSB) to assess the English language skills (more specifically, the reading skills) of English-Ukrainian partial immersion students relative to either students from the regular school program (1975-76), or matched control students (matched in 1974-75 on the basis of sex, MRT scores, parents' ability to speak Ukrainian, and parents' socio-economic status; matched in 1977-78 on the basis of sex and CCAT verbal IQ scores) (See Table 3).

Insert Table 3 About Here

The test consists of four parts: word meaning, paragraph meaning, vocabulary, and word study skills. The vocabulary component was not tested after grade 1. In 1974-75 and 1977-78 t-tests for dependent samples were performed on the raw scores of experimental and control students, while in 1975-76 t-tests for independent samples were performed on the raw scores of experimental and regular program students. Test results indicated that:

1. In the initial year of the study experimental and control students scored equally well on the word meaning, paragraph meaning and vocabulary subtests of the SAT. However, on the subtest of word study skills, the control group scored significantly better ($p=.02$). Interestingly enough, "further examination of the results on word study skills suggested that in

only one of the five schools did the experimental subjects score lower than their matched controls" (Muller, Penner, Blowers, Jones & Mosychuk 1977:479). Further analysis of the results on this one subtest revealed "a significant difference in favor of the matched controls when compared with the one low scoring school ... and a significant difference in favor of the experimental group when the remaining four schools were compared with their controls" (Muller, Penner, Blowers, Jones & Mosychuk, 1977:480). The researchers acknowledged that there was no ready explanation for this discrepancy.

2. In the 1975-76 school year there were no significant differences between the grade 1 experimental and regular program students on subtests of vocabulary and paragraph meaning; however, on the subtests of word meaning and word study skills the bilingual students scored significantly higher ($p<.05$). Researchers (Edmonton Public School District No. 7 1976) noted that this might suggest that "either the test results from the 1974-75 evaluation were due to chance [i.e., results on word study skills] or the program teachers, once aware of a potential problem, can promptly correct it" (10). Just as likely, however, it might suggest that the difference in results could be attributed, at least in part, to the use of matched controls in one instance and regular program students in the other.

3. In the 1975-76 school year there were no significant differences between the grade 2 experimental and regular students on subtests of word meaning or paragraph meaning; however, on the test of word study skills, the bilingual students scored significantly higher ($p<.001$).

4. In 1977-78 only grade 4 students were administered components of the Stanford Achievement Test. No significant difference was noted between experimental and control group students on any of the subtests.

In 1976-77 the EPSB introduced a new reading test, the Edmonton Public School

Board Elementary Reading Test (See Table 4)

Insert Table 4 About Here

Introduction of the test meant that long term comparisons between reading subtests could not be made. The new test consisted of two parts--decoding and comprehension. T-tests for dependent samples indicated that:

1. In 1976-77 there was no significant difference between grade 1 and grade 3 experimental and regular program students on either component of the test. Grade 2 bilingual students, meanwhile, scored significantly higher ($p=.01$) than control students on the decoding subtest.

2. In 1976-77, bilingual students at the grade 3 level were also compared to matched control students on the two subtests of reading. The experimental and control students were the same students who, in grade 1, had already been matched on the basis of sex, MRT scores, parents' socio-economic status, and parents' Ukrainian language skills. There were no statistically significant differences between the two groups on either test.

3. In 1977-78, grades 1, 2 and 3 bilingual program students were matched with control groups on the basis of sex and MRT scores. Test results showed no significant differences between the two groups at any grade on either component of the test.

4. In 1978-79, the last year of the study, grade 1 students were not tested. Grades 2, 3, 4 and 5 students that year were matched with control groups on the basis of sex, school attended,

and grade level. Test results that year indicated that at grades 2, 3 and 4 bilingual students scored equivalently to control students on both components of the test. Grade 5 bilingual students, meanwhile, scored significantly better than control students on both the decoding ($p=.05$) and comprehension ($p<.05$) subtests of reading.

The results of the Edmonton Public School Board's five year study would seem to suggest that, overall, the students in the bilingual English-Ukrainian program achieve as well as or better than regular students when tested in reading. This point must be qualified, however, since it is based on the results of tests that have, in some instances, compared bilingual program students to regular (non-bilingual program) students, and in other instances compared the bilingual program students to control students matched on a variety of variables, depending on the grade level and the year of assessment.

Since studies of French partial immersion programs tend to evaluate literacy skills in general (e.g., reading comprehension, sight vocabulary, grammar skills, writing) as opposed to specific reading skills (e.g., word meaning, paragraph meaning, vocabulary, word study skills), the test results of the two types of programs are not directly comparable. It is interesting to note, however, that while French partial immersion students usually (Barik & Swain, 1974; Barik, Swain & Nwanunobi, 1977; Lapkin & Stinson, 1978) but not always (Barik & Swain, 1976b; Barik, Swain & Nwanunobi, 1977) suffer a lag in some of their literacy skills until the end of grade 3 or 4 when compared to English-only control groups, students in Ukrainian partial immersion programs display no lag in reading (other than in the initial year of the elementary study) relative to English only control groups. This may in large part be due to the fact that English reading skills are taught **before** Ukrainian reading, whereas English reading is taught **after** French reading in French immersion programs.

The Edmonton Catholic School System (ECSS) used three tests to assess the English language achievement of English-Ukrainian partial immersion students relative to control students (See Table 5). The vocabulary and comprehension subtests of the Gates MacGinitie test were used from 1974-75 to 1978-79; the reading component of the Wide Range Achievement Test (WRAT) was used in 1974-75, and the vocabulary and comprehension components of the Canadian Test of Basic Skills (CTBS) were used in both 1977-78 and 1978-79.

Insert Table 5 About Here

In the first year of the Edmonton Catholic School System's study, experimental students were matched with two control groups on the basis of Lee Clark Readiness scores, socio-economic status and sex. Control group one (C1) consisted of students who had a Ukrainian background but were not in the program; control group two (C2) consisted of students not in the program and not of Ukrainian background. In subsequent years, experimental and control students were matched on the basis of grade, sex, age, Primary Mental Ability (PMA) scores, and parents' socio-economic status (using the Pineo and Porter scale of Occupational Prestige in Canada, 1967). These five criteria were used "in order to increase the internal validity of the project design.... Each criterion was deemed to be an important variable in determining to some extent the students' relative success or failure in achieving the objectives of the school program" (Ewanyshyn n.d.:9). One way analysis of variance (ANOVA) and, if necessary, Scheffe Multiple Comparison of Means Tests (1974-75, 1975-76), or t-tests for

dependent samples (1976-77 to 1978-79) revealed that:

1. In the first two years of the study there was no significant difference between experimental or control group students on either the vocabulary or comprehension subtests of the Gates MacGinitie Test. This was also the case in the only year (1974-75) the WRAT reading test was given.

2. In the third year of the study, grades 1 and 2 experimental and control students scored equivalently on the Gates MacGinitie vocabulary and comprehension subtests. At the grade 3 level experimental students scored significantly better ($p < .05$) than did control students on both tests.

3. In 1977-78 bilingual and control students at the grades 1, 2 and 3 levels scored equivalently on the Gates MacGinitie vocabulary subtest. However, at the grade 1 and 2 levels there was a statistically significant advantage ($p < .05$) in favor or the bilingual students on the Gates MacGinitie comprehension subtest.

At the grade 4 level experimental and control group students scored equivalently on the CTBS vocabulary test, but the experimental group scored significantly better ($p < .05$) than did control students on the CTBS comprehension subtest.

4. In the last year of the study there was no significant difference between experimental or control group students on the Gates MacGinitie vocabulary subtest or on the comprehension component of the CTBS. However, on the Gates MacGinitie comprehension test, grade 2 experimental students scored significantly better ($p < .05$) than did their controls, and on the CTBS vocabulary test, grade 4 control students scored significantly better ($p > .05$) than did the the experimental group.

What is particulary interesting to note about this set of findings is that in the 1976-77

school year the means of the grade 3 vocabulary and comprehension tests for the bilingual students were significantly higher than the means for the control students, and that in the following year the means for the grade 1, 2 and 4 comprehension tests for the bilingual students were again significantly higher than the means for the control group students. These results would seem to reinforce the notion that learning a second language may actually lead to an improvement in language skills in the first language.

The Manitoba Department of Education used four tests when assessing the English language achievement of English-Ukrainian students relative to regular program students (See Table 6). In grade 1 either the Primer or Primary I level of the Metropolitan Achievement Test (MAT) was used. In grade 2 the Primary II level of the MAT was used, and in grade 3 the Canadian Test of Basic Skills (CTBS) was employed.

Insert Table 6 About Here

The scores of experimental students on these tests were compared to the scores of regular program students from the same schools in which the programs were offered. Results showed that:

1. In the first two years of the study there were no statistical differences (level of significance not defined in reports but assumed to be .05) between the experimental or regular program students on any of the tests used at the grade 1 or 2 levels.

2. In the last year of the study grade 1 control students "had significantly higher scores

than students in the [bilingual] program classrooms" (Chapman 1982:5). At the same time, grade 3 experimental and control group students scored equivalently on five of the six subtests of the CTBS (vocabulary, reading, spelling, capitalization, language use). On the sixth subtest (punctuation), bilingual students "had significantly better scores" (Chapman 1981:5) (level of significance not defined in report, but again assumed to be .05).

It should be pointed out, however, that students in the 1981-82 study were evaluated after being in the program for only four months. This was not, however, the case for students in the 1979-80 and 1980-81 studies. In these studies students were evaluated at the end of the academic year. This difference in the time of testing can have a telling effect on test results.

It should also be noted that in the 1981-82 study grade 2 bilingual program students were not evaluated. Chapman (1982) states that "to minimize disruption of classroom activities, only the first and final years of the ... Program were tested" (3).

Chapman is quick to point out some of the potential limitations of the Manitoba study. They include the following:

1. "Due to the nature of the sample, the findings reflect student achievement within Manitoba's English-Ukrainian Program and the control sample. Therefore, any conclusions drawn from the sample may not be generalized beyond the Manitoba program" (1982:2).

2. The selection of control group students for the assessment of English skills was made by the principal of each school.

3. In one of the schools in which English language skills were assessed, experimental and control group students received different language programs.

4. Some schools decided not to administer the complete Grade Three English language battery. Since the decision applied to program and control classes equally, the two samples were probably not biased by the decision. However, the smaller sizes for some of the English language skills may have resulted in less reliable results for the subtests in question (1982:3).

Such limitations lead one to question the significance of the Manitoba findings. Chapman (1982) was perhaps being generous when she suggests that the most that can be said about the results is that "students in the bilingual program did at least as well as their counterparts in the regular program on tests of English language arts" (16).

These results, like those of the Edmonton Public and Catholic school systems, suggest that there are no major differences between experimental and control group children on tests of English language achievement. In the one year when there was a lag at the grade 1 level (1981-82) it could be attributed to the fact that students were evaluated after being in the program for only four months, as opposed to a complete year as had been the case in the other Manitoba English-Ukrainian bilingual study.

The English language skills of heritage language partial immersion students have also been assessed on an informal basis by questioning parents and/or teachers about their satisfaction with students' development of English language skills while in the program. Where results are available (Manitoba's English-Ukrainian program, see Table 7) they suggest that the majority of parents and teachers are happy with students' development of English language skills.

Insert Table 7 About Here

In summary, it can be stated that the results of the testing to date suggest that students in bilingual English-Ukrainian programs appear to achieve as well as, or better than, students in regular programs when tested in reading. This would imply that such programs have no detrimental effects on students' English language achievement. One must, of course, keep in mind the previously mentioned limitations of the testing.

What can be done to improve future testing in this area? Three points come to mind. First, there needs to be a clearer description of who the children are who are enrolled in these programs. This means more complete data are needed on the IQs, ability levels, and socio-economic statuses of students in the programs relative to school populations. Longitudinal data outlining the parents' abilities to speak Ukrainian, the amount/percentage of time Ukrainian is spoken at home, and the students' prior attendance in a Ukrainian language pre-school or kindergarten program would also prove useful, as would data which would permit comparisons amongst school boards or jurisdictions.

Second, at the present time the only English language test scores available for students in the English-Ukrainian partial immersion programs are those based on formal, normed tests. To date there has been no analysis of non-normed skills (e.g., writing) as there has been in French immersion programs.

It should be noted that comparisons with norms only may obscure the issue, for students may do as well as or better than the normative group, but not as well as peers at the same level of ability. Test constructors should keep such factors in mind in future evaluations.

Third, when testing skills, the same test or series of tests should be used each year so that long-term comparisons between subtests can be made. This was a problem particularly with the Edmonton Public School Board's studies. For example, in 1974-75 (grade 1), 1975-76

(grades 1 and 2), and 1977-78 (grade 4) the EPSB used the Stanford Achievement Test to assess the English language skills (more specifically, the reading skills) of English-Ukrainian students relative to either control groups or students from the regular program. However, in 1976-77 and 1977-78 (grades 1-3), and 1978-79 (grades 2-5) the EPSB compared the English language skills of students in the program using the subtests of the Elementary Reading Test. This switch meant that no long-term comparisons between subtests could be made.

Ukrainian Language Achievement

In Canada there are no school aged native speakers of Ukrainian with whom students in the English-Ukrainian partial immersion program can be compared. Instead, researchers have assessed the second language proficiency of Ukrainian partial immersion students using a variety of techniques. The first technique involved the comparison of the pre and postest scores of bilingual program students on tests of Ukrainian language skills. This was done in the programs of both the EPSB and the ECSS. A second and less exacting technique that has been employed required that a school board test students once during the year on a battery of second language tests and then report the average score for the group on each test. Manitoba's programs were evaluated in this manner. A third technique that has been employed simply required that school boards question parents and teachers about their satisfaction with students' development of second language skills. This highly informal technique was included as a component of the Manitoba testing.

When the pre and posttest scores of students in English-Ukrainian partial immersion programs are compared, results consistently show a significant improvement in the vast majority of second language skills assessed. This statement is borne out by results from both

the EPSB (See Table 8) and the ECSS (See Table 10). For example, the EPSB employed two related tests to assess the Ukrainian language skills of students in their English-Ukrainian partial immersion program (See Table 8). The first test, the Ukrainian Language Oral Skills Test, was developed by Board personnel to measur : comprehension and oral expression skills. The test consisted of five subtests: (a) receptive vocabulary, (b) expressive skills, (c) ability to follow instructions, (d) ability to answer questions, and (e) ability fo identify numbers. The test was used only in the 1974-75 school year and was subsequently revised extensively by members of both the Edmonton Public and Edmonton Catholic School Boards. The new test (renamed the Ukrainian Language Skills Test) was based on the intended content of the Ukrainian curriculum for each grade and measured a wide variety of language skills, depending on the grade level and year of assessment. Ewanyshyn (n.d.) described the new test as "much more comprehensive than the original test" (21). It should be pointed out that in the process of evaluating the Ukrainian language skills of the partial immersion students, the grade 1 and 2 tests were each revised twice and the grade 3 test was revised once. T-tests for dependent samples indicated that:

1. In the intial year of the study there was a significant improvement in the Ukrainian language skills in three of the four areas tested: expressive vocabulary ($p<.001$), ability to answer questions ($p<.001$), and ability to follow instructions ($p=.002$). In the fourth area assessed (receptive vocabulary) there was no significant difference between pre and posttest scores. Researchers, however, were quick to point out that "pretest scores on this subtest were close to the maximum which would suggest that a ceiling effect was operating" (Muller, Penner, Blowers, Jones & Mosychuk 1977:480).

It is also interesting to note that in the 1974-75 study no significant differences were

noted between the scores of the males and females on any of the subtests of Ukrainian language skills, nor were any significant differences noted between the scores of students who wished to continue in the program and those of students who did not wish to continue (Muller, Penner, Blowers, Jones & Mosychuk 1977).

2. In 1975-76, 1976-77 and 1977-78 students in all grades of the English-Ukrainian bilingual program showed significant improvement ($p<.001$) on all subtests of the Ukrainian Language Skills Test from fall pretests to spring posttests.

3. In 1978-79 "a significant improvement had been made for most of the subtests in all four grades [grades 2 to 5] over the year ($p<.001$)" (Edmonton Public Schools 1979:11). The areas where there were no significant differences ($p>.05$) between pretest and posttest scores were oral expression at the grade 4 level and listening ability at the grade 5 level.

Insert Table 8 About Here

Despite the apparently positive results it is interesting to note teachers' perceptions of student achievement in Ukrainian language skills (See Table 9). Asked about this in the 1978-79 school year, most teachers, grades 2 to 5, reported that while their students were doing "well" or "very well" on the receptive aspects of Ukrainian (reading, understanding), these same students were doing "poorly" or "very poorly" on the productive aspects of the language (speaking, writing). (Edmonton Public Schools 1979)

Insert Table 9 About Here

Sokolowski's (1982) work on the acquisition of selected Ukrainian nominal morphological endings would seem to add credence to the teachers' perceptions about the productive skills of their students. Working with students in grades 1 to 7 in the English-Ukrainian partial immersion program in Edmonton, and with the parents of these students, Sokolowski found not only that "child performance on all oblique cases is too poor either to confirm or refute the hypotheses proposed for the acquisition of oblique (non-nominative) cases" (v), but also that "the lack of improvement in performance on the oblique cases over grades suggests that a non-standard or pidginized Ukrainian may be developing in the Ukrainian immersion classroom" (vi).

This perceived weakness in productive skills may, at least in part, explain why most parents (76 percent) and teachers (79 percent) reported that the students only "rarely" or "sometimes" spoke Ukrainian outside of the school (Edmonton Public Schools, 1979). This despite the fact that between 62 and 67 percent of parents reported speaking Ukrainian with the child (1975: 67%, 1976: 62%, 1978: 64%). (Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1978)

The ECSS used the same Ukrainian language tests in the same years as did the EPSB. Results of pre and posttests (See Table 10) suggest that:

1. In the first year of the study the respective means for pre and posttest scores were 36.7 and 56.1. While this large mean gain would suggest an increase in language skills one can

not assume that this is actually the case, because during the year there was a change in test administrators and test items, thus invalidating any pre and posttest comparisons. (Tomko, n.d.)

2. In the second year of the study students again displayed a marked increase from pretest to posttest scores. However, Ewanyshyn (n.d.) notes that "the direct comparison of pre and post-test results ... is somewhat tentative as seven students entered the program at one of the schools in mid-year [and] the pretest results were unavailable for these students (17).

3. In the last three years of the study, students in all grades of the program displayed significant improvement ($p=.01$ to $p=.001$) from fall pretest scores in Ukrainian language skills to spring posttest scores.

Insert Table 10 About Here

Available data for the ECSS suggest two interesting features about the language background of students entering the System's English-Ukrainian partial immersion program. First, the vast majority of students in the program had some formal exposure to Ukrainian prior to entering the program. Data for students in grades 1 to 5 in 1977-78 and 1978-79 (See Table 11) show that between 80 and 94 percent of students entered the program with some prior exposure to Ukrainian. It is interesting to note that as the program progressed over the five year period, fewer parents of grade 1 students reported that their children had attended Ukrainian parish play school (17.9% in the first year of the program, reduced to 3.9% by the last year of the program), while a greater proportion reported that their children had attended

Ukrainian kindergarten (35.7% in the first year of the program, increasing to 66.7% in the last year of the program).

Insert Table 11 About Here

Secondly, it can be stated that while a large proportion of parents reported speaking Ukrainian at home (See Table 12), only a small percentage of parents reported using Ukrainian in the home for 50 percent or more of the time. This is particularly interesting when viewed in the light of the Board's own findings (See Table 13), those of the Edmonton Public School System (Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975), and those of Muller, Penner, Blowers, Jones and Mosyschuk (1977), all of which suggest that there is a high correlataion between Ukrainian Language Skills Test results (both pretest and posttest results) and the amount of time Ukrainian is spoken at home. This, Ewanyshyn (1978) states, "would seem to suggest that the amount of time Ukrainian is spoken at home may be a variable which may predict to some extent the degree of success students may achieve at school in acquiring Ukrainian language skills" (54).

Insert Table 12 About Here

Insert Table 13 About Here

Perhaps at this juncture it should be pointed out that for the first six years that the English-Ukrainian program was in operation and being evaluated in Edmonton schools, it functioned without having specific performance objectives for most grades. Only the grade 1 program had specific objectives, and these objectives were, at best, rather vague. They stated that:

1. The children should learn a basic vocabulary (about 700 words).
2. The children should be able to follow simple directions given in Ukrainian.
3. The child should be able to respond to questions in Ukrainian.
4. The teacher should be able to interact with teacher and pupils in planned situations. (Alberta. Department of Education 1975:n.p.).

Grade-by-grade content and skills objectives first appeared in 1981. Prior to this time program personnel appear to have taken their direction for program policies from a general statement of objectives for the program put out by the Alberta Department of Education in 1975. That statement noted that

> the main purpose of bilingual Ukrainian-English education for children whose background is Ukrainian is to help the child to develop an awareness of and a pride in his culture and an understanding of the culture of the majority society while simultaneously learning to communicate effectively in Ukrainian as well as in English. For children whose background is not Ukrainian the bilingual Ukrainian-English education should enable the child to become aware of and to develop an appreciation for the cultural group whose language he is learning while gaining fluency in the Ukrainian language as well as his own (Alberta. Department of Education 1975:n.p.).

Because of the rather general nature of this statement, and the statement of objectives for grade 1 students, it is difficult to evaluate whether these objectives had been met in yearly

evaluations between 1974-75 and 1978-79. The same is also true for the English-Ukrainian program in Manitoba, since this program also took direction not from specific content and skills objectives for each grade, but rather from statements of objectives that tended to be rather general in nature.

When the achievement of experimental students in the Edmonton Public and Catholic systems is viewed side-by-side (See Tables 8 and 10) one particularly interesting trend appears. What is immediately noticeable is that while students in the Public system tended to score higher on both pre and posttests in Ukrainian the first two years the programs were evaluated, this situation changed dramatically so that in the third, fourth and fifth years of the studies, students in the Catholic system scored higher than did their Public system counterparts on all Ukrainian language postests as well as on the majority of the Ukrainian language pretests. Since no explanation is readily available one might be tempted to speculate that the phenomenon may, at least in part, have had something to do with the high attrition rate of the EPSB program and that System's corresponding policy of allowing late entry pupils into the program (e.g., after grade 1). Such speculation could not, however, be reinforced by data. In fact, just the opposite is the case. In 1978-79 when teachers were asked to compare the Ukrainian language skills of late entry students (grade 1, 3 late entry students; grade 2, 2 students; grade 3, 4 students) to the Ukrainian language skills of program students, teachers reported that "most late entry students performed the same or better than the other students in their class" (Edmonton Public Schools 1978:28).

One might also be inclined to speculate that this shift in Ukrainian language achievement away from the public school system in favor of the Catholic system might, at least in part, have something to do with a variation between systems over the amount of exposure students received

in Ukrainian prior to entering the English-Ukrainian program. Unfortunately, parallel data are not available for the two systems and thus this point can neither be proved nor disproved. For example, while it is known that between 80 and 94 percent of students in the ECSS program had received some formal exposure to Ukrainian (e.g., Ukrainian kindergarten, parish school) before entering the English-Ukrainian program (See Table 11), no equivalent data are available for the EPSB. Similarly, while it is known that between 62 and 67 percent of EPSB parents reported speaking Ukrainian with their children (amount/percentage of time unspecified), available data for the ECSS show not the percentage of parents who reported speaking Ukrainian with their children, but rather the number of parents who spoke Ukrainian at home for varying percentages of time (e.g., "none at all," "on occassion," "about 50% of the time," "about 75% of the time," "all the time"). While the data from the two systems are indeed interesting for what they reveal about the students' Ukrainian backgrounds, they are by no means directly comparable.

The second way that the Ukrainian language achievement of students in partial immersion programs has been assessed is by testing bilingual program students once during the year on a battery of second language skills and then reporting the average score for the group on each test. This was done for the English-Ukrainian partial immersion program in Manitoba (See Table 14).

Insert Table 14 About Here

In Manitoba the Ukrainian language consultant for the Department of Education administered the Ukrainian Language Skills Test to each child during May or June of 1981 and again in December of 1981 or January of 1982. Despite claims that the EPSB test had been "modified by the Ukrainian Language Consultant to ensure consistency with the suggested Manitoba curriculum" (Chapman 1982:3), a check of test items revealed that except for the grade 2 Manitoba test, the tests used in the two provinces were identical.

The test consisted of four subtests at the grade 1 level: vocabulary identification, oral vocabulary, directions, and oral comprehension. A fifth component, reading comprehension, was added at the grade 2 level. At the grade 3 level slightly different skills were assessed. They included comprehension and identification, reading, writing, and oral skills.

Results of the May and June 1981 testing showed that "after one year of instruction in the Ukrainian language, children scored 70 percent or above, on average, on tests of understanding spoken Ukrainian" (Chapman 1981:16), and that given two years of instruction in Ukrainian, students scored an average of over 80 percent when the scores of the individual tests are combined. These findings are consistent with the Edmonton posttest results in Ukrainian--particularly those of the Edmonton Catholic School System (See Tables 8 and 10. EPSB: 77.5 percent average score after one year of instruction in Ukrainian, 73.0 percent average score after two years of Ukrainian instruction; ECSS: 71.5 percent average score after one year of instruction in Ukrainian, 79.5 percent average scorea after two years of Ukrainian instruction). Unfortunately, differences in terminology employed by the boards doing the testing make it impossible to tell if the Edmonton and Manitoba tests were scored in the same manner.

Results of the December 1981 to January 1982 Manitoba testing showed that after four to

five months in the program grade 1 students "could correctly identify about three-quarters of the words on which they were tested. However, vocabulary, directions, and comprehension skills were not as advanced as vocabulary identification skills" (Chapman 1982:8). At the same time, grade 3 students who were 4 or 5 months into the grade 3 program were performing at about the 75 percent level on oral language skills (tested on reading pronunciation, reading intonation, response to pictures) and were developing reading skills (tested on sequencing, synonyms, antonyms, prepositions, pronouns, reading for detail, reading for main idea) and to a lesser degree, writing skills (tested on word dictation, sentence and phrase dictation, written comprehension, descriptive sentences, completing sentences). (Chapman, 1982)

Chapman's (1982) conclusion was that if the bilingual students' achievement was satisfactory at the grade 3 level "then it can be concluded that the English-Ukrainian Bilingual Program is achieving its objective with respect to Ukrainian" (9).

The third way that the second language achievement of students in heritage language partial immersion programs has been assessed was by questioning parents and teachers about their satisfaction with childrens' development of second language skills. Where results are available (Manitoba English-Ukrainian program, 1979-80, 1980-81, see Table 15) they suggest that the majority of parents and teachers are "very satisfied" (Chapman 1981) with students' development of second language skills.

Insert Table 15 About Here

In summary, it can be stated that:

1. Based on pre and posttest scores and end-of-the-year assessments, students in all grades of English-Ukrainian partial immersion programs made considerable progress in learning Ukrainian.

2. When questioned, most teachers felt that students made the greatest progress in the receptive aspects of Ukrainian (reading and understanding) and the least progress in the productive aspects (speaking and writing). This is a pattern typical of all persons learning a language, be that language the first or a subsequent language. More research is needed to determine if the receptive/productive gap is reduced to an acceptable level in subsequent grades.

3. The majority of parents and teachers who were questioned about their satisfaction with student progress in second language skills reported that they were either "satisfied" or "very satisfied."

While such findings are generally positive, one must remember to view the findings in the light of the weaknesses in the testing methodology. For example, to build a sound program there must be a clear statement of philosophy, goals, objectives and procedures. Without such information it is impossible to tell whether the objectives of a program are being met. Unfortunately, for the first six years that the English-Ukrainian program was in operation and being evaluated in Edmonton schools it functioned without having specific performance objectives for most grades.

Second, control variables must remain constant when testing. Just as it was previously mentioned that tests and test items must remain constant, so must other control variables. For example, in Manitoba some of the testing of students took place in December and January while in earlier years testing took place in April and May. Obviously, the results from such tests can

not be fairly compared. Similarly, if a school board is to compare experimental students to matched controls one year, they should use the same criteria in subsequent years. This, however, was not the case in the Edmonton Public School Board where experimental students were compared in 1974-75, 1977-78, and 1978-79 to students matched on the basis of a variety of variables, and in 1975-76 and 1976-77 to regular (unmatched) program students.

Third, while the studies cited suggest that students' second language skills improve each year between fall pre-testing and spring post-testing, there is no real indication of how the students' skills improved. Did their lexical skills improve? orthography? morphology? There needs to be clear indication of what it is that students actually learn in the way of second language skills at each grade level. Perhaps language texts from the Ukrainian might be consulted for this purpose and adapted to suite the situation in western Canada.

Fourth, it is interesting to see that students in the Edmonton Catholic School System scored higher than did their public school counterparts on all Ukrainian language postests as well as on the majority of Ukrainian language pretests. Several factors might come into play here, including dropout rates and teaching approaches. Whatever the case, more research is needed to determine the underlying cause for the difference in performance.

Finally, future studies might wish to consider whether there is a relationship between the second language proficiency of the teacher and the second language proficiency of the student in the partial immersion programs. This is a particularly important point for English-Ukrainian partial immersion programs since very few of the teachers in these programs are native speakers of the language.

Academic Achievement

The academic achievement of students in English-Ukrainian partial immersion programs has been assessed in two ways. The first and most common way is by comparing experimental students with matched control students or regular program students (i.e., non-bilingual program students) on tests of mathematics. A variety of mathematics tests have been used for this purpose, including: (a) the arithmetic component of the Wide Range Achievement Test (WRAT), (b) the Science Research Association (SRA) mathematics test, (c) the math concepts and math problems components of the Canadian Test of Basic Skills (CTBS), and (d) the Elementary School Mathematics Survey (developed by the Edmonton Public School Board). The English-Ukrainian programs of the ECSS and the EPSB have each used this technique to assess academic achievement.

The second and less common way of assessing the academic achievement of students is to ask teachers to report on the percentage of students in the bilingual and regular programs who are progressing "satisfactorily" in the primary subject areas, namely mathematics, language arts, science and social studies. This technique was employed by all Manitoba school boards offering English-Ukrainian partial immersion programs.

When experimental students are compared with matched control students or regular program students on tests of mathematics, findings suggest that there is sometimes, but not always, a lag in the achievement of mathematics skills. In those cases where there is a lag, it is overcome by the second year in the program, and from grade 2 onwards bilingual program students score equivalently or, in some cases, superior to control or regular program students.

From 1974-75 to 1978-79 the EPSB evaluated the academic achievement of English-Ukrainian partial immersion students relative to control or regular program students

on the Elementary School Mathematics Survey (See Table 16). As was pointed out earlier, over the course of their five year study the EPSB used a variety of criteria when comparing control students and regular program students to experimental students. For example, in the first year of the study experimental students were matched with a control group on the basis of sex, Metropolitan Readiness Test scores, parents' socio-economic status, and parents' ability to speak Ukrainian. Socio-economic status was determined by scores on Pineo and Porter's scale of Occupational Prestige in Canada (1967). Control students that year came from a variety of regular unilingual English programs from across the System.

In the second and third years of the study experimental students were compared to all students in the same grade of the regular program in the bilingual program schools using mathematics and reading test results. In addition, grade 1 students in these years were also compared on age (1975-76 only) and Metropolitan Readiness Test scores, while grade 3 students were also compared on Canadian Cognitive Abilities Test results. To further complicate matters, grade 3 bilingual program students in the third year of the study were also compared with matched control subjects who had been chosen in October, 1974 on the basis of sex, Metropolitan Readiness Test scores, parents' socio-economic status and parents' Ukrainian language skills.

In the fourth year of the study a control group of regular students was randomly chosen. The selection was stratified on the basis of sex and Metropolitan Readiness Test scores for grades 1, 2 and 3 and on the basis of sex and Canadian Cognitive Abilities verbal IQ scores for grade 4.

In the last year of the study experimental students were matched with control students from the program schools on the basis of sex and grade level.

T-tests for dependent samples (1974-75 and grade 3 students in 1976-77) or

independent samples (1975-76 to 1978-79) (See Table 16) indicated that:

1. In 1974-75 there was no significant difference between the performance of grade 1 bilingual and control group students.

2. From 1975-76 to 1977-78 .he performance of grade 1 regular program students was significantly higher ($p<.05$ to $p<.001$) than that of the bilingual program students.

It should be noted, however, that the lag in mathematics was not exhibited by all the grade 1 bilingual program classes. In fact, in the second, third and fourth years of the study "only one or two classes accounted for the differences between the regular and bilingual programs" (Edmonton Public Schools 1978:14). Unfortunately, researchers made no mention of the distinguishing characteristics of these classes.

3. By grade 2 the performance of the bilingual students was equivalent or superior to that of control or regular program students.

4. In grades 3 and 4 there was no statistical difference between the experimental and control or regular program students.

5. In the last year of the study, grade 5 bilingual students scored significantly better ($p<.05$) than did control students.

Insert Table 16 About Here

From 1974-75 to 1978-79 the ECSS evaluated the academic achievement of Ukrainian partial immersion students relative to matched control groups using one or more of the

following tests: the WRAT arithmetic test, the SRA arithmetic test, the mathematics concepts or the mathematics problems subtests of the CTBS (See Table 17).

In the first year of the study, experimental students were matched with two control groups on the basis of Lee Clark Readiness scores, socio-economic status and sex. Control group one consisted of students who had a Ukrainian background but were not in the program; control group two consisted of students not in the program and of a Ukrainian background. In other years, experimental students were matched with control students who had been drawn from the regular classes in the schools in which the program was offered or from neighbouring schools of relatively similar socio-economic status. Experimental and control students in these years were matched on the basis of grade, sex, age, Primary Mental Ability scores and socio-economic status ratings. (Socio-economic status was based on the Pineo and Porter scale of Occupational Prestige in Canada, 1967). Test scores were compared using either a one way analysis of variance (ANOVA) and a Scheffe Comparison of Means test where significance was found (1974-75, 1975-76), or a t-test for dependent samples (1976-77 to 1978-79). Results (See Table 17) indicated that:

1. There was no significant difference between grade 1 experimental and control group students in three of the four years when compared on the WRAT arithmetic test and/or the SRA arithmetic test. In the one year where there was a significant difference (1976-77) it favored the experimental group ($p<.05$).

2. When grade 2 experimental and control students were first compared on SRA arithmetic test results (1975-76) no significant difference ($p>.05$) was found between the two groups. However, in two of three subsequent years (1976-77 and 1978-79) a significant difference ($p<.05$) was found in favor of the experimental group, while in the remaining year

(1977-78) a significant difference was found in favor of the control group.

3. There was no significant difference between experimental and control students on the SRA arithmetic test at the grade 3 level, or on the CTBS subtests of math concepts and problems at the grade 4 level.

4. At the grade 5 level, experimental students scored significantly better ($p>.05$) than control students on the CTBS subtests of math problems, but only equivalent to control students on the CTBS subtest of math concepts.

Insert Table 17 About Here

The second way that the academic achievement of heritage language partial immersion students has been assessed is by asking teachers to report on the percentage of students in the bilingual and regular programs who are progressing "satisfactorily" in the primary subject areas, namely mathematics, English language arts, science and social studies (See Table 18). This technique was employed by all school boards in Manitoba offering English-Ukrainian partial immersion programs. Results have shown that "students in the English-Ukrainian Bilingual program did at least as well as their counterparts in the regular program in each subject area within the overall primary school program" (Chapman 1981:16). This is regardless of whether the subject was taught in English (e.g., English language arts, arithmetic, science) or in Ukrainian (e.g., social studies).

Insert Table 18 About Here

In summary, it can be stated that when these groups of findings are viewed together they leave unresolved the issue of how English-Ukrainian partial immersion programs affect academic achievement. For example, while the Edmonton Public School Board's English-Ukrainian study found an initial lag in the mathematics achievement of students in the program, no such lag appeared in the ECSS study. Furthermore, while the EPSB study found that grade 5 experimental students scored significantly better than did control students, no such difference was noted in the Catholic Board's study. The studies of both boards, however, conclude that there were no significant differences between the achievement test results of grade 2, 3 or 4 experimental and control students on tests of mathematics.

Unfortunately, the results from French partial immersion studies are of little help in resolving the issue. This is because mathematics and science are taught in French in all French partial immersion classes and in English in all of the English-Ukrainian partial immersion classes; therefore, the findings from one program are not generalizable to the other program.

Findings on the academic achievement of students in the Ukrainian bilingual programs do, nonetheless, raise some interesting issues that need to be addressed and resolved. For example, it remains unclear as to why school boards and departments of education involved in English-Ukrainian partial immersion programs have decided to offer mathematics and science in English, while teaching social studies, art, music and religion in Ukrainian. Does it have something to do with research from French partial immersion programs (e.g., Barik & Swain

1974; Barik, Swain & Nwanunobi 1977; Lapkin & Stinson 1978) which has found that students in such programs perform "equivalently or not as well as their unilingually educated peer group" (Swain 1978:581) on standardized tests of mathematics and science? Does it have something to do with the levels of L2 proficiency of students in the program, or with Cummins' (1976b, 1978b, 1979, 1982) and Toukomaa and Skutnabb-Kangas' (1977) threshold hypothesis which theorizes that "there may be threshold levels of linguistic competence which a bilingual child must attain both in order to avoid cognitive disadvantages and allow the potentially beneficial aspects of bilingualism to influence his cognitive and academic functioning" (Cummins 1979:222)? Is it a case of availability of resource materials? Does it have something to do with the second language proficiency of teachers and their subsequent ability/inability to convey concepts in mathematics and science using Ukrainian?

A second issue that needs to be addressed with respect to academic achievement in English-Ukrainian partial immersion programs is the question of availability of information. While results from French immersion programs are widely published and readily available, this is not the case for the English-Ukrainian partial immersion programs. This dearth of information is part of a much larger problem--the lack of a sizeable database of results on English-Ukrainian programs from which to draw conclusions. In fact, there is no database for such programs after grade 5. This means that the best that can be done is to extrapolate from French immersion programs. This situation would seem to suggest that an intensive evaluation should be implemented for the English-Ukrainian partial immersion programs. Several questions should be kept in mind as such a plan is developed:

1. Should evaluations follow cohorts through all grades?
2. Should testing go beyond the bounds of formal, normed tests to include analysis of skills

such as reading and writing? (This is presently the case in French immersion programs, but not the case in the English-Ukrainian partial immersion programs).

3. Should there be a rethinking of the stance that mathematics and science must be taught in English in the English-Ukrainian program? Related to this is the question of whether students in this type of programs are able to handle subject matter taught to them in their L2.

4. Is there a difference in student performance when different teachers instruct in the English and Ukrainian portions of a class?

5. Should students in the program be compared to students in Ukrainian core programs, a comparison that was not made in the first set of studies?

Cognitive Development

Components of two studies (Bain, as found in Ewanyshyn n.d.; Edmonton Public Schools 1977) have examined the consequences of English-Ukrainian partial immersion programs on cognitive development.

Bain's study involved 60 students from the ECSS--30 from the English-Ukrainian partial immersion program, and 30 control group students from the regular program. The "conservation" and "embedded figures" tests were administered to all students in an effort to obtain information about the students' level of logical cognition and cognitive style. The first test judges a child's ability to "recognize that certain properties, such as substance, weight, volume, or number, remain unchanged in the face of certain transformations such as changes in the subject's form, shape, color, or position" (Bain, as found in Ewanyshyn n.d.:36). The second test requires the student to "locate a previously seen simple figure within a larger complex figure which has been so organized as to obscure or embed the sought after simple figure" (Bain,

as found in Ewanyshyn n.d.:37). Bain informs us that

> in the strictest interpretation ... scores on the EFT [Embedded Figures Test] reflect extent of competence at perceptual disembedding. Individual differences in EFT performance, however, appear to relate to more than differences in perceptual functioning. Numerous studies . . have shown that the ability to "keep things separate in experience" in the EFT, signifying in effect greater differentiation in perceptual functioning, manifests itself in congruent form in other areas of the person's psychological activity, signifying greater differentiation in these other areas as well (Bain, as found in Ewanyshyn n.d.:37).

Results from Bain's testing showed no significant differences between the experimental and control groups on levels of logical cognition or on type of cognitive style. Bain's assessment of the findings are guarded. He suggests that it would be premature to call the program a success with regard to cognitive consequences. Instead, he suggests that the most that can be said is that "the program is not having detrimental cognitive consequences" (Bain, as found in Ewanyshyn n.d.:39).

The Edmonton School Board's English-Ukrainian study (1977) was conducted by Cummins and Mulcahy (See also Cummins and Mulcahy 1978). While the study's primary focus was on the cognitive development of students who came to the program already fluently bilingual, it also examined the cognitive development of non-fluent bilingual program students relative to unilingual students attending regular classes.

The researchers matched twelve fluently bilingual students in grade 1 and twelve fluently bilingual students in grade 3 with two control groups each on the basis of nonverbal IQ (Raven's Progressive Matrices), socio-economic status, sex and age. Control group one was drawn from children in the same classes as the fluently bilingual students. This control group came from homes where little or no Ukrainian was spoken and had Ukrainian skills that were rated low by their teachers. Control group two consisted of unilingual students attending regular classes in the same schools. Six tests of cognitive and linguistic development were individually

administered to all students. Test results covered word association, semantic-phonetic preference, verbal transformation effect, class inclusion, ambiguities, and the arbitrariness of language. What Cummins and Mulcahy found was that

> The performance of the nonfluent bilingual Grade1 and 3 children was similar to that of the regular students on five of the tasks. On the sixth, the Semantic-Phonetic Preference test, the Grade 1 nonfluent bilingual children made fewer semantic choices. The fluently bilingual children in both Grades 1 and 3 were better able to analyze ambiguities in sentence structure than either the nonfluent bilinguals or the regular students. On the other five tasks there was no significant difference between the fluent bilinguals and the other two groups (Edmonton Public Schools,1977:ii).

In summary, it can be stated that neither study is in ready agreement with the bulk of existing research which suggests that exposure to two languages can positively influence cognitive functioning in a variety of ways, including: accelerating the development of general intellectual skills (Barik & Swain 1976a; Cummins & Gulutsan 1974; Peal and Lambert 1962); promoting divergent thinking (Bruck, Lambert & Tucker 1974; Cummins & Gulutsan 1974; Landry 1974), increasing children's sensitivity to feedback cues (Cummins 1976a; Genesee, Tucker & Lambert 1975), and promoting an analytical approach to language (Cummins 1978a; Ianco-Worrall 1972). In fact, both studies suggest that there are **no** significant differences between non-fluent bilingual program students and unilingual regular program students on levels of logical cognition or types of cognitive style. More research is needed to confirm, refute or qualify this finding.

Social and Psychological Adjustment and Perception

The social and psychological consequences of English-Ukrainian partial immersion programs have been assessed in three ways. The first way has been to question parents, teachers and school administrators about their perceptions of student attitudes toward the program,

toward the target culture, and toward the learning of other languages and the understanding of other ethnic groups as a result of being in the program (See Chapman, 1981; Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Ewanyshyn n.d., 1977, 1978, 1979; Muller, Penner, Blowers, Jones and Mosychuk 1977; Penner, Blowers, Mosyschuk and Jones 1978; Tomko 1975). The second way has been to question parents, teachers and administrators about their satisfaction with the program, their perceptions of how well the children and/or program had been integrated into the school, and their desire to see the program continue as is or with slight changes (See Chapman, 1981; Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Ewanyshyn n.d., 1977, 1978, 1979; Muller, Penner, Blowers, Jones and Mosychuk 1977; Penner, Blowers, Mosyschuk and Jones 1978; Tomko 1975). Finally, at least one board Edmonton Public Schools 1977, 1978, 1979) has tried to determine the underlying causes for students withdrawing from their English-Ukrainian partial immersion program.

While answers to the first set of issues (parents', teachers' and school administrators' perceptions of student attitudes toward the program, toward the target culture and toward the learning of other languages and the understanding of other ethnic groups as a result of being in the program) vary from grade to grade, year to year and between systems, they nonetheless paint a clear picture. When questioned, most parents, teachers and administrators felt that: (a) children had enjoyed the bilingual program they were in, b) the program had had a positive effect on childrens' appreciation of the target culture, and c) the program had helped the children develop a positive attitude toward the learning of other languages and the understanding of other cultures (See Tables 19, 20 and 21).

Insert Table 19 About Here

Insert Table 20 About Here

Insert Table 21 About Here

Responses to questionnaires have also shown that the majority of parents, teachers and school administrators were satisfied with the English-Ukrainian program, felt the children and/or program had been integrated into the school, and wished to see the program continue as is or with slight changes (See Tables 22, 23 and 24).

Insert Table 22 About Here

Insert Table 23 About Here

Insert Table 24 About Here

Small components of the Edmonton Public School Board's 1976-77, 1977-78 and 1978-79 English-Ukrainian studies examined the issue of why students withdrew from this type of program. Withdrawals were a major concern of the board. For example, between October, 1977 and May, 1979 there were 46 withdrawals from the program, 32 of the 46 withdrawals occurring during June and July of 1978 alone. Twelve of the withdrawals were for reasons of moving. The other 34 parents who had withdrawn their children for other reasons were all sent questionnaires asking about their reason(s) for withdrawing their child(ren). The 18 parents who responded listed 32 reasons. Three of the reasons were personal; 29 were academic or program-related. The academic or program-related reasons included: difficulty wih English language arts (8), difficulty learning Ukrainian (7); disliked teacher (4); withdrawn at request of teacher or counselor (2); miscellaneous academic or program problems (8). (Edmonton Public Schools 1979)

Similar results were found during the 1976-77 school year. Twenty-eight children in the program that year were no longer in the program in October, 1977. Eighteen had moved. Of the remaining 10 withdrawals, two had left for personal reasons and eight because of academic

reasons. Academic reasons cited included trouble with English language arts (4), and trouble with Ukrainian, English or mathematics (6). (Edmonton Public Schools 1978) Note again the high proportion of withdrawals for what could be termed academic or program-related reasons.

Interestingly enough, when parents were questioned about how well their children did academically after leaving the program (See Table 25), most responded "better" or "much better." (Edmonton Pubic Schools 1979) This is particularly interesting to note since three of the four areas in which students did better (English language arts, mathematics and science) were already being taught in English in the bilingual program.

Insert Table 25 About Here

It should be pointed out that this pattern of high attrition rates in Alberta's heritage languages partial immersion programs has continued over the years. This is particularly interesting in light of the fact that attrition rates in Manitoba's sister programs appear not to be as high. For example, available data (See Table 26) for the original Ukrainian grade 1 cohort and the second grade 1 Ukrainian cohort in each province suggests that:

1. The drop in enrolments between grade 1 and 2 were more pronounced in Alberta.

2. Using grade 5 enrolments for comparison purposes (cohort 1 in each case), the retention rate in Alberta (75.0%) was somewhat lower than in Manitoba (81.4%). For the second cohort, however, the figures were much more pronounced. At grade 4 the retention rate in Alberta was 70.8%, while in Manitoba it was 82.3%.

3. In Alberta, the greatest decrease in the size of the cohorts corresponded to the administrative divisions of the school system. For example, when data from the original grade 1 cohort are examined it is noticeable that "the enrolment between Grade six and seven (Junior High) dropped from 87 to 67, a 23% decrease. Similarly, 60 students were enrolled in Grade 9, but this number dropped to 39 in Grade 10 (Senior High), a 35% decline" (Cipywnyk 1984: appendixes C-1and C-2).

4. In Alberta only 32.5% of the original grade one cohort were still in the program at the grade 10 level.

Insert Table 26 About Here

In summary, it can be stated that when surveyed, most parents, teachers and school administrators felt that the children had enjoyed the heritage language program they were in, that the programs had had a positive effect on the children's appreciation of the target culture, and that the programs had helped the children develop a positive attitude toward the learning of other languages and the understanding of other cultures. In addition, when questioned, the majority of parents, teachers and school administrators indicated satisfaction with the programs, felt that the programs and/or children had been integrated into the school setting, and expressed a desire to see the programs continue as is or with slight changes. Furthermore, where school boards examined the issue of withdrawals, most noted that the majority of withdrawals were for reasons of moving or for academic or program-related reasons. These

points aside, three issues would seem to beg further study. First, at least some studies (See Swain & Lapkin 1982) have shown that by grade 8 French partial immersion students score as well in French language skills as total immersion students one grade level behind them. This is an interesting finding and would seem to hold out the hope that English-Ukrainian partial immersion students might also achieve high levels of L2 proficiency if they were to remain in the program to the grade 8 level and beyond. Unfortunately, present enrollment patterns show that large numbers of students in the program drop out before they reach this level. This is despite apparent student and parent satisfaction with the programs. More research is needed to determine why students are dropping out of the programs and what can be done to lessen and perhaps reverse the dropout trend.

In a similar vein, more research is also needed to determine if there is a clearly discernible relationship between language or learning disabilities and attrition rates in the programs, or between teaching styles and either student scores or attrition rates. Where school boards have attempted to determine the underlying causes for students dropping out of their Ukrainian bilingual programs (Edmonton Public Schools 1977, 1978, 1979) two factors have continually lead the list: family moves, and academic- or program-related problems. Unfortunately, the reports did not make mention of the specific nature of the problems. This aspect of the English-Ukrainian partial immersion programs needs further study.

Third, both Alberta's and Manitoba's English-Ukrainian partial immersion programs became extended core programs after grade 6. In Manitoba, the plan is to teach only Ukrainian language arts, social studies, and in some cases, one other subject in Ukrainian. In Alberta, instruction in the scond language is continued only in Ukrainian language arts. What impact does this decreased use of the second language have on second language skills? desire to remain in the

program? students attitudes toward language and cultrure?

Conclusion

English-Ukrainian partial immersion programs have been in operation in Alberta, Saskatchewan and Manitoba since the mid-1970s. Despite this fact, few of the programs have been formally evaluated, and little has been written about the testing that has been done to date. Furthermore, when one examines the results of the testing that has been done it becomes evident that there were major weaknesses in the original testing, a fact which brings many of the test results into queston.

What does this turn, suggest? It suggests that there is a strong need for further testing of the English-Ukrainian partial immersion programs. If the problems identified with the initial testing of the programs are to be avoided, the methodology and variables employed in future testing must be closely scrutinized and monitored. In return, future test results will provide researchers with a large and valuable database of information from which to draw conclusions and make recommendations.

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Table 1: Enrollments in Heritage Language Partial Immersion Programs in Alberta, Saskatchewan and Manitoba Schools, 1985-86

Program	Grade K	1	2	3	4	5	6	7	8	9	10	11	12	Totals
Alberta														
English-Ukrainian	*	170	200	191	162	175	125	64	70	58	13	15	30	1273
English-Hebrew	*	55	52	63	59	62	67	21	26	25				426
English-Yiddish	*	148	10	14	10	8	5							61
English-German	*	55	36	51	36	19	29	22						248
English-Arabic	*	56	48	32	26									162
English-Mandarin	*	48	32	26										106
English-Polish	*	28	28	20										76
														2352
Saskatchewan														
English-Ukrainian	20	17	17	15	11	12	9							**101**
Manitoba														
English-Ukrainian	115	137	138	142	105	92	89	35						853
English-German	109	114	105	70	59	54								511
English-Hebrew	34	50	40	30	24									178
														1542

Note. * figures not availble

Total **3995**

Sources: Alberta. Alberta Education. n.d. a. Numbers of Students by Grade and by School as ( ) Section 159 (1Xa) of the School Act [sic] [statistics], and Alberta. Alberta Education. n.d. b. Statistics Regarding the Number Students Enrolled in Classes in Which Instruction is Offered in a Language Other Than English or French as Permitted by Section 159 (1Xb) of the School Act [statostics]. (Both available from Alberta Education/ Devonian Building, West Tower/ 11160 Jasper Avenue/ Edmonton, Alberta/ T5K 0L2); Manitoba. Department of Education. n.d. a Enrolment in English-Ukrainian Bilingual Classes for the 1985-86 School Year [statistics], and Manitoba. Department of Education. n.d. b. Statistics: Hebrew and German Bilingual Programs [statistics]. (Both available from Manitoba Department of Education/ Curriculum Development and Implementaion Branch/ Robert Fletcher Building/ 409 - 1181 Portage Avenue/ Winnipeg, Manitoba/ R3G 0T3); Saskatchewan. Saskatchewan Education. n.d. Ukrainian Language Enrolments 1985-86 [statistics]. (Available from Saskatchewan Education/ 3130 - 8th Street East/ Saskatoon, Saskatchewan/ 37K 2H6).

Table 2: Enrollments, by School Board, in Alberta, Saskatchewan and Manitoba's English-Ukrainian Partial Immersion Programs, 1985-86

School Division/Location	Grade K	1	2	3	4	5	6	7	8	9	10	11	12	Totals
Alberta														
County of Lamont/Lamont	*	15	20	17	13	16	10							91
County of Minburn/Vegreville	*	15	20	21	20	20	18	16	17					147
County of Strathcona/ Sherwood Park and vacinity	*	13	6	17	13	12	11							72
Edmonton Catholic	*	73	91	70	63	64	48	35	41	38	13	15	30	581
Edmonton Public	*	31	40	47	36	47	38	13	12	20				284
Sherwood Park Catholic	*	23	23	19	17	16								98
														2330
Saskatchewan														
Saskatoon Public	20	17	17	15	11	12	9							101
Manitoba														
Boundary S.D. /Vita		9	13	14										36
Dauphin-Ochre S.D./Dauphin	19	16	26	15	18	14								108
Lord Selkirk S.D. /Selkirk		24		19										43
River East S.D./Winnipeg	23	21	26	20	21	15	19							145
Seven Oaks/Winnipeg	21	18	27	14	17	19	18							133
Transcona-Springfield S.D./ Winnipeg	30	32	34	37	37	34	44	27						275
Winnipeg S.D.	22	17	12	24	12	10	8	8						113
														853
Total														3284

Note. * figures not availble

Sources: Alberta. Alberta Education.n.d. a. Numbers of Students by Grade and by School ( ) Section 159 (1)(a) of the School Act [sic] [statistics]. (Available from Alberta Education/ Devonian Building, West Tower/ 11160 Jasper Avenue/ Edmonton, Alberta/ T5K 0L2); Manitoba. Department of Education, Enrolment in English-Ukrainian Bilingual Classes for the 1985-86 School Year [statistics]. (Available from Manitoba Department of Education/ Curriculum Development and Implementaion Branch/ Robert Fletcher Building/ 409 - 1181 Portage Avenue/ Winnipeg, Manitoba/ R3G 0T3); Saskatchewan. Saskatchewan Education, Ukrainian Language Enrolments 1985-86 [statistics]. (Available from Saskatchewan Education/ 3130 - 8th Street East/ Saskatoon, Saskatchewan/ S7K 2H6).

Table 3: Comparison of EPSB English-Ukrainian Bilingual (B) and Control (C) or Regular (R) Program Students on the Subtests of the Stanford Achievement Test, 1974-75, 1975-76, 1977-78

Subtest (possible score)	1974-75 B	1974-75 C	1975-76 B	1975-76 R	1976-77 B	1976-77 R	1977-78 B	1977-78 C
Grade 1								
word meaning		.54	26.3[b]	24.4				
paragraph meaning		.85	25.3	22.9				
vocabulary		.35	21.9	21.6				
word study skills		3.38[a]	43.5[b]	39.5				
Grade 2								
word meaning			21.8	19.5				
paragraph meaning			33.6	31.0				
word study skills			46.4[c]	40.3				
Grade 4								
word meaning (36)							24.0	22.1
paragraph meaning (60)							36.0	34.0
word study skills (61)							48.4	47.5

Note. 1974-75 figures are the differences of means in terms of experimental minus control score.

a: $p=.02$; b: $p<.05$; c: $p<.001$

Sources: Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1978; Muller, Penner, Blowers, Jones and Mosyschuk 1977; Lamont, Penner, Blower, Mosychuk and Jones 1978.

Table 4: Comparison of EPSB English-Ukrainian Bilingual (B) and Control (C) or Regular (R) Program Students on the Subtests of the Elementary Reading Test

Subtest (possible score)	1976-77 B	1976-77 R	1977-78 B	1977-78 C	1978-79 B	1978-79 C
Grade 1						
decoding (70)	60.4 =86%	57.3 =82%	42.2 =84%	42.5 =85%		
comprehension (70)	47.0 =67%	44.8 =64%	35.2 =70%	34.7 =74%		
Grade 2						
decoding (70)	64.1[c] =92%	62.3 =84%	60.8 =87%	59.2 =85%	59.2 =84%	58.9 =84%
comprehension (70)	53.3 =76%	50.7 =72%	53.4 =76%	50.9 =73%	51.5 =74%	51.3 =73%
Grade 3						
decoding (63)	50.0 =79%	49.3 =78%	51.4 =82%	50.9 =81%	51.6 =82%	50.7 =81%
comprehension (77)	54.6 =71%	54.6 =71%	56.4 =73%	54.2 =70%	57.2 =74%	53.9 =70%
Grade 4						
decoding (56)					43.2 =77%	40.9 =73%
comprehension (84)					63.0 =75%	57.1 =68%
Grade 5						
decoding (50)					41.2[a] =82%	38.5 =77%
comprehension (90)					70.3[b] =78%	63.7 =71%

	B	C
Grade 3		
decoding (63)	50.2 =80%	50.5 =80%
comprehension (77)	55.1 =72%	55.9 =73%

Note. At the grade 1 level in 1977-78, decoding and comprehension scores were out of 50, not 70.

a: $p=.05$; b: $p<.05$; c: $p=.01$

Sources: Edmonton Public Schools 1977, 1978, 1979.

Table 5: Comparison of the ECSS English-Ukrainian Bilingual (B) and Control (C) Program Students on Achievement Tests in English Language Arts

Grade/ Group	Gates MacGinitie vocabulary	Gates MacGinitie comprehension	WRAT reading	CTBS vocabulary	CTBS comprehension
1974-75					
1 B	55.2	56.4	124.1		
C1	56.3	55.5	128.9		
C2	54.9	55.4	125.4		
1975-76					
1 B	60.0	57.5			
C	57.3	58.0			
2 B	56.6	58.3			
C	56.7	56.7			
1976-77					
1 B	54.2	54.9			
C	56.4	55.9			
2 B	58.5	56.7			
C	57.5	56.5			
3 B	60.4[a]	59.2[a]			
C	57.0	55.4			
1977-78					
1 B	59.2	59.6[a]			
C	57.8	56.7			
2 B	57.5	57.3[a]			
C	55.3	54.0			
3 B	57.4	55.7			
C	59.5	58.5			
4 B				25.4	42.8[a]
C				23.7	37.6
1978-79					
1 B					
C					
2 B	59.3	59.0[a]			
C	57.2	56.2			
3 B	59.0	55.3			
C	56.5	54.1			
4 B				21.0	36.9
C				25.6[a]	40.9
5 B				28.9	36.9
C				27.3	42.0

Note. a: $p < .05$

Sources: Ewanyshyn n.d., 1978, 1979, 1980; Tomko n.d.

Table 6: Mean Scores on the Primer, Primary I and Primary II Levels of the Metropolitan Achievement Test (MAT) and on the CTBS, Level 9--Manitoba Department of Education 1979-80 to 1981-82

Test	Grade 1 B	Grade 1 R	Grade 2 B	Grade 2 R	Grade 3 B	Grade 3 R
1979-81						
Metropolitan, Primer level						
reading	28	29				
language	23	22				
Metropolitan, Primary I level						
word knowledge	30	28				
reading	37	30				
word analysis	33	30				
Metropolitan, Primary II level						
word knowledge			32	30		
reading			39	39		
word analysis/language			32	31		
spelling			23	25		
1981-82						
Metropolitan, Primer level						
reading	19.0	22.6*				
language	17.0	18.6*				
CTBS						
vocabulary					15.6	14.6
reading					28.4	26.1
spelling					17.2	15.5
capitalization					16.9	16.4
punctuation					19.3*	15.2
language use					17.4	17.5

Note. * indicates significantly better score. However, reports do not indicate the level of significance.

Sources: Chapman 1981, 1982.

Table 7: Percentage of Parents (P) and Teachers (T) "Very Satisfied" with Student's Development of English Language Skills

Group	Manitoba English-Ukrainian Program 1979-80	1980-81
parents	80%	80
teachers	69	69

Source: Chapman 1981.

Table 8: EPSB Mean Pre and Posttest Scores on the Ukrainian Language Oral Skills Test (1974-75), and the Ukrainian Language Skills Test, 1975-76 to 1978-79

Grade	1974-75		1975-76		1976-77		1977-78		1978-79	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	50.9	77.0	45.0	73.1[a]	47.4	68.0[a]	35.1	65.4[a]		
	88	88	90	90	90	90	100	100		
	(53%)	(88%)	(50%)	(81%)	(53%)	(76%)	(35%)	(65%)		
2			35.1	100.4[a]	45.1	103.0[a]	37.9	89.6[a]	39.5	98.0[a]
			125	125	137	137	137	137	137	137
			(24%)	(80%)	(33%)	(75%)	(28%)	(65%)	(28%)	(72%)
3					49.7	91.8[a]	52.7	81.3[a]	65.1	93.5[a]
					140	140	135	135	135	135
					(36%)	(66%)	(39%)	(60%)	(48%)	(72%)
4							67.2	94.6[a]	61.3	81.3
							140	140	140	140
							(48%)	(68%)	(44%)	(58%)
5		score							60.0	76.0
		possible score							140	140
		(percent)							(43%)	(54%)

Note. a: $p<.001$

Sources: Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Muller, Penner, Blowers, Jones and Mosychuk 1977.

Table 9: Performance Rating of Students' Ukrainian Language Skills by EPSB Bilingual Program Teachers, 1978-79

Ukrainian Language Skill	N	Very Poorly	Poorly	Well	Very Well
speaking	14	7%	57	29	7
understanding	14	-	29	57	14
reading	11	-	18	64	18
writing	10	10	50	0	10

Source: Edmonton Public Schools 1979.

Table 10: ECSS Mean Pre and Posttest Scores on the Ukrainian Language Oral Skills Test (1974-75) and the Ukrainian Language Skills Test, 1975-76 to 1978-79

Grade	1974-75 Pre	1974-75 Post	1975-76 Pre	1975-76 Post	1976-77 Pre	1976-77 Post	1977-78 Pre	1977-78 Post	1978-79 Pre	1978-79 Post
1	36.7	56.1	30.2	65.0	37.7	70.8[b]	47.6	73.2[a]		
	90	90	90	90	90	90	100	100		
	(41%)	(62%)	(34%)	(72%)	(42%)	(79%)	(48%)	(73%)		
2			41.7	92.6	38.9	108.0[b]	37.1	101.1[a]	68.3	114.7[a]
			125	125	125	125	137	137	137	137
			(33%)	(74%)	(31%)	(86%)	(27%)	(74%)	(50%)	(84%)
3					82.2	121.4[b]	68.2	94.2[a]	80.4	105.9[a]
					140	140	135	135	135	135
					(59%)	(87%)	(51%)	(70%)	(60%)	(78%)
4							95.6	116.7[a]	75.5	102.8[a]
							140	140	140	140
							(63%)	(83%)	(54%)	(73%)
5		score							85.1	96.7[a]
		possible score							140	140
		(percent)							(61%)	(69%)

Note. a: $p<.01$; b: $p<.001$

Sources: Ewanyshyn n.d., 1978, 1979, 1980; Tomko n.d.

Table 11: Percentage of ECSS English-Ukrainian Bilingual Students who had Learned Ukrainian Prior to Attending School

Program	Grade/Years 1 77-78	1 78-79	2 77-78	2 78-79	3 77-78	3 78-79	4 77-78	4 78-79	5 77-78	5 78-79
Ukrainian kindergarten	66.7%	56.1	56.0	47.1	40.9	34.7	50.0	37.1		35.7
Ukrainian parish play school	3.9	2.4	5.6	11.8	16.1	17.4	5.6	17.1		17.9
Ukrainian Saturday class	3.9	0.0	0.0	2.9	3.2	0.0	0.0	0.0		0.0
other	2.0	17.1	8.3	11.8	16.1	26.1	16.7	5.7		10.7
two or more of the above	23.5	24.4	33.3	26.5	22.6	21.7	27.8	40.0		35.7
number of parents responding in affirmative/number of parents questioned	51/56	41/49	36/45	34/36	31/35	23/27	18/22	35/39		28/30
percentage of parents responding in affirmative (i.e., their child had learned Ukrainian prior to entering the bilingual program	91%	84%	80%	94%	86%	85%	82%	90%		93%

Source: Ewanyshyn 1979, 1980.

Table 12: Percentages of Time ECSS Parents Spoke Ukrainian at Home, 1977-78 and 1978-79

Year and Grade	N	not at all	on occassion	about 50% of the time	about 75% of the time	all the time
1977-78						
1	48	6.3%	68.8	14.6	2.1	8.3
2	36	13.9	61.1	5.6	2.8	16.7
3	27	33.3	44.4	14.8	3.7	3.7
4	39	7.7	53.8	20.5	12.8	5.1
1978-79						
1	55	14.5	67.3	10.9	3.6	3.6
2	45	13.3	62.2	22.2	2.2	0.0
3	34	5.9	70.6	8.8	8.8	5.9
4	21	14.3	61.9	9.5	4.8	9.5
5	30	3.3	53.3	26.7	6.7	10.0

Source: Ewanyshyn 1979, 1980.

Table 13: Correlation of Results on the Ukrainian Pre and Posttest and the Amount of Time Ukrainian is Spoken at Home, ECSS, 1978

Grade	n	pretest r	pretest p	posttest r	posttest p
1	45	0.480	.0004	0.396	.004
2	36	0.446	.003	0.515	.0007
3	39	0.599	.00003	0.434	.003

Source: Ewanyshyn 1978.

Table 14: Mean Scores on the Ukrainian Language Test, Manitoba Department of Education, 1979-81

Subtest	Grade 1	2	3
1979-81			
vocabulary identification	85%	86	
oral vocabulary	50	74	
directions	73	94	
oral comprehension	64	71	
reading comprehension		80	
1981-82			
vocabulary identification	74		
oral vocabulary	28		
directions	43		
oral comprehension	32		
comprehension and identification			63
reading			62
writing			34
oral skills			74

Note. It should be noted that the 1982 tests were administered 4 or 5 months into the program (e.g., December or January), while the 1981 tests were administered at the end of the school year (e.g., May/June).

Sources: Chapman 1981, 1982.

Table 15: Percentage of Parents (P) and/or Teachers (T) who were "Very Satisfied" with Student's Development of Second Language Skills

Group	Manitoba English-Ukrainian Program 1979-80	1980-81
parents	85%	85
teachers	82	82

Sources: Chapman 1981.

Table 16: Comparison of EPSB English-Ukrainian Bilingual (B) and Control (C) or Regular (R) Program Students on the Elementary School Mathematics Survey

Grade	1974-75		1975-76		1976-77		1977-78		1978-79	
	B	C	B	R	B	R	B	R	B	C
1	-1.52		40.2	43.5[a]	53.0	55.0[b]	54.0	55.7[a]		
2			41.4[b]	37.7	53.7[a]	51.8	52.7	52.2	51.5	52.1
3					45.5	43.2	44.8	44.2	43.8	46.6
4							43.9	42.6	42.0	41.2
5									46.3[a]	41.6
					B	C				
3					43.0	44.3				

Note. 1974-75 figures are the differences of means in terms of experimental minus control scores.

a: $p<.05$; b: $p<.001$

Sources: Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977,1978, 1979; Muller, Penner, Blowers, Jones and Mosychuk 1977; Lamont, Penner, Blower, Mosychuk and Jones 1978.

Table 17: Comparison of ECSS English-Ukrainian Bilingual (B) and Control (C) Students on Achievement Tests in Mathematics

Grade/ Group	WRAT arithmetic	SRA arithmetic	CTBS math concepts	CTBS math problems
1974-75				
1 B	*	20.0		
C1	*	19.5		
C2	*	20.0		
1975-76				
1 B		25.7		
C		25.8		
2 B		24.9		
C		25.4		
1976-77				
1 B		30.2[a]		
C		28.6		
2 B		26.5[a]		
C		24.7		
3 B		24.9		
C		24.9		
1977-78				
1 B		91.7		
C		92.2		
2 B		80.9		
C		85.1[a]		
3 B		67.5		
C		73.2		
4 B			20.8	16.7
B			20.0	14.9
1978-79				
1 B				
C				
2 B		98.8[a]		
C		91.9		
3 B		99.0		
C		92.8		
4 B			19.1	14.2
C			19.4	16.0
5 B			22.1	16.5[a]
C			20.9	13.9

Note. *In 1974-75 "no significant difference was indicated on the WRAT arithmetic performance among the three groups" (Tomko n.d.: p. 16).

a: $p < .05$

Sources: Ewanyshyn n.d., 1978, 1979, 1980; Tomko n.d.

Table 18: Average Percentage of Grade 1 and 2 (combined) Bilingual (B) and Control (C) Students Performing "Satisfactorily" by Subject Area--Manitoba Department of Education, 1981

Subject	Bilingual	Control
arithmetic	94%	91
English language arts	90	88
science	99	96
social studies	99	96

Note. "Because of the similarity in scores, results were collapsed across Grade One and Two" (Chapman 1981:10).

Source: Chapman 1981.

Table 19: Percentage of Parents, Teachers and School Administrators who felt that Children Enjoyed the Bilingual Program

Program	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82
EPSB Eng-Uk								
parent	98	90-93	87-92	85				
teachers	80	100	100	100	100			
administrators				100	100			
ECSS Eng-Uk								
parents	100	89-95	77-95	85-93	76-95			
teachers	100	100	100	89	90			
administrators		100	100	100	1000			

Note. Where there is a range it indicates that parent responses varied from grade to grade.

Sources: Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Ewanyshyn n.d., 1978, 1979, 1980; Muller, Penner, Blowers, Jones and Mosychuk 1977; Penner, Blowers, Mosyschuk and Jones 1978; Tomko n.d.

Table 20: Percentage of Parents, Teachers and School Administrators who felt that the Bilingual Program had a Positive Effect on Children's Appreciation of the Target Culture

Program	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82
EPSB Eng-Uk								
parent	76	92	69-92	83-91	98-100			
teachers	60	75	89	100	100			
administrators								
ECSS Eng-Uk								
parents	89	85-97	85-97	86-94				
teachers	100	100	100	100	100			
administrators			100					

Note. Where there is a range it indicates that parents' responses varied from grade to grade.

Sources: Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Ewanyshyn n.d., 1978, 1979, 1980; Muller, Penner, Blowers, Jones and Mosychuk 1977; Penner, Blowers, Mosyschuk and Jones 1978; Tomko n.d.

Table 21: Percentage of Parents, Teachers and School Administrators who felt that the Bilingual Program had Helped the Children Develop a Positive Attidude Toward the Learning of other Languages/Understanding of Other Cultures

Program	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82
ECSS Eng-Uk								
parents					61/86%			
teachers								
administrators								
Manitoba Eng-Uk								
parents						60/45	60/45	
teachers								
administrators								

Note. / = other languages/other cultures

Sources: Chapman 1981; Ewanyshyn n.d., 1978, 1979, 1980; Tomko, n.d.

Table 22: Percentage of Parents, Teachers and School Administrators who were Happy or Very Happy with the Bilingual Program and Childrens' Participation in it

Program	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82
EPSB Eng-Uk								
parent	70	95	77-97	87	81			
teachers	100	83	67		43			
administrators	60	89-100	75-100	100	100			
ECSS Eng-Uk								
parents	100	94-97	80	94	89-96			
teachers				89	100			
administrators		100		100	100			
Manitoba Eng-Uk								
parents						83	83	
teachers						85	85	
administrators						88	88	

Note: Where there is a range it indicates that responses varied from grade to grade.

Sources: Chapman 1981; Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Ewanyshyn n.d., 1978, 1979, 1980; Muller, Penner, Blowers, Jones and Mosychuk 1977; Penner, Blowers, Mosyschuk and Jones 1978; Tomko n.d.

Table 23: Percentage of Parents, Teachers and School Administrators who felt that the Bilingual Program Children were an Integral Part of the School

Program	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82
EPSB Eng-Uk								
parent					74			
teachers					64			
administrators		88	90		100			
ECSS Eng-Uk								
parents								
teachers				89	50			
administrators		100		60	100			
Manitoba Eng-Uk								
parents								
teachers						92	92	
administrators								

Sources: Chapman 1981; Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Ewanyshyn n.d., 1978, 1979, 1980; Muller, Penner, Blowers, Jones and Mosychuk 1977; Penner, Blowers, Mosyschuk and Jones 1978; Tomko n.d.

Table 24: Percentage of Parents, Teachers and School Administrators who, When Questioned, would like to see the Program Continue as is or with Slight Changes

Program	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82
EPSB Eng-Uk								
parent	100	96-100	92-95					
teachers		100	78					
administrators	80	100	100					
ECSS Eng-Uk								
parents	97	97	97-100	100				
teachers		83	100	87	100			
administrators	100	100	100	60	100			

Note. Where there is a range it indicates that parents' responses varied from grade to grade.

Sources: Edmonton Public School District No. 7 1976; Edmonton Public Schools 1975, 1977, 1978, 1979; Ewanyshyn n.d., 1978, 1979, 19809; Muller, Penner, Blowers, Jones and Mosychuk 1977; Penner, Blowers, Mosyschuk and Jones 1978; Tomko n.d.

Table 25: Students' Academic Achievement After Withdrawing from the Edmonton Public School Board's English-Ukrainian Bilinguaql Program, 1977-78, 1978-79

Subject	N	much worse	worse	same	better	much better
English language arts	14			14%	50	36
mathematics	15			13	27	40
social studies	13			15	39	46
science	13			15	39	46

Source: Edmonton Public Schools 1979.

Table 26: Ukrainian Partial Immersion Program Retention Patterns in Alberta and Manitoba: Original Grade 1 Cohort and Second Grade 1 Cohort

	Alberta				Manitoba			
Grade	**Year**	**Cohort 1**	**Year**	**Cohort 2**	**Year**	**Cohort 1**	**Year**	**Cohort 2**
1	74-75	120	75-76	113	79-80	97	80-81	125
2	75-76	105	76-77	101	80-81	93	81-82	118
3	76-77	99	77-78	86	81-82	88	82-83	109
4	77-78	93	78-79	80	82-83	84	83-84	104
5	78-79	90	79-80	73	83-84	79		
6	79-80	87	80-81	74				
7	80-81	67	81-82	53				
8	81-82	65	82-83	52				
9	82-83	60	83-84	49				
10	83-84	39						

Source: Cipywnyk 1984.